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THE LARGE TOADS OF CUBA

By Albert Schwartz
Department of Biology, Albright College, Reading, Pa.

The genus *Bufo* is represented in Cuba by five forms. The largest of the Cuban toads is *Bufo peltacephalus* Tschudi, which has an islandwide distribution. Under two National Science Foundation grants, collections of this large species have been made on the Isla de Pinos as well as in all the provinces of Cuba, and adequate material has now accumulated to make possible an assessment of the variation in the characteristics of the various populations involved. Over the years, my companions have aided me greatly in collecting these large amphibians, but I wish to mention especially the aid afforded me by Ronald F. Klinikowski, Peter F. Pepe, Barton L. Smith and James R. Talada in taking specimens of the new form from the northern coast of Oriente. The illustrations of dorsal views are the work of David C. Leber and the drawings of the heads are by Peter F. Pepe; both merit my gratitude for their work. I have borrowed material from the U. S. National Museum (USNM), the Museum of Comparative Zoology (MCZ) and the Illinois Natural History Survey (INHS). I wish to thank Doris M. Cochran, Ernest E. Williams and Philip W. Smith for their hearty cooperation in the current study.

Bufo peltacephalus was described by Tschudi (1838: 52) as *Bufo peltocephalus*, a toad whose coloration was brownish red with a pattern of hieroglyphs. Such a thumbnail description leaves much to be desired as far as allocating this name to one of the two populations of the large Cuban toad. Although it was considered likely that the original material came from the vicinity of the La Habana, use of the term "hieroglyphs" to describe the diffuse and blotched pattern of the Habana population is not tenable. Strictly speaking, I would not call the

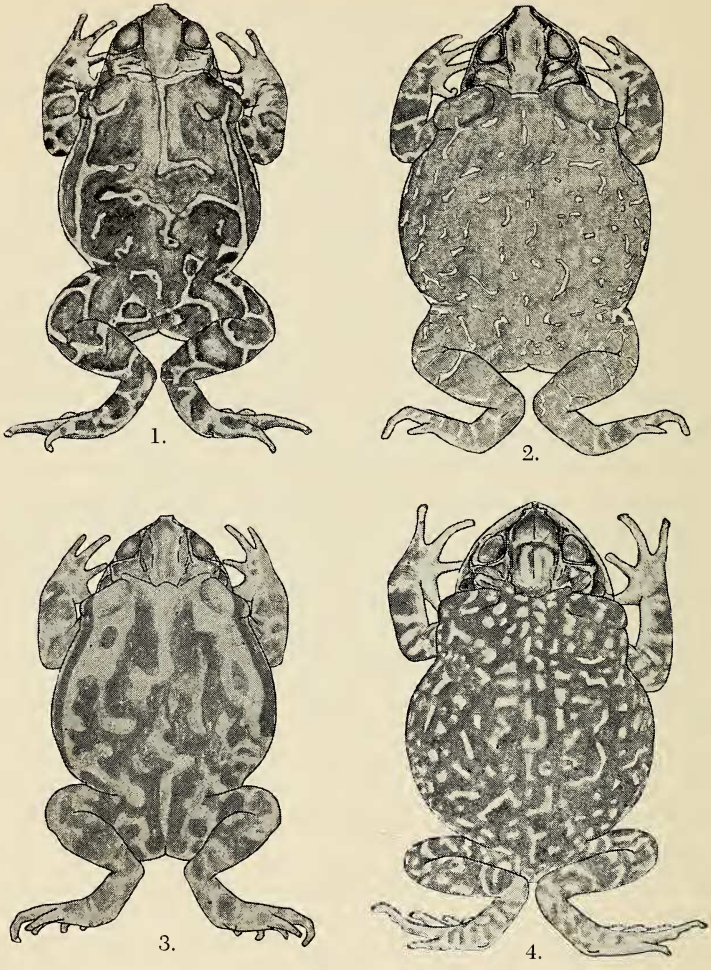

FIG. 1–4

markings of the central Cuban toads hieroglyphs, but at least this population shows definite markings on a reddish-brown dorsum (see Figs. 1 and 2). I feel that it is more appropriate to restrict the name *B. p. peltacephalus* to these distinctly marked toads which occur from Las Villas Province eastward throughout Oriente; with the description of a new subspecies of this amphibian, restriction of the type locality may well be

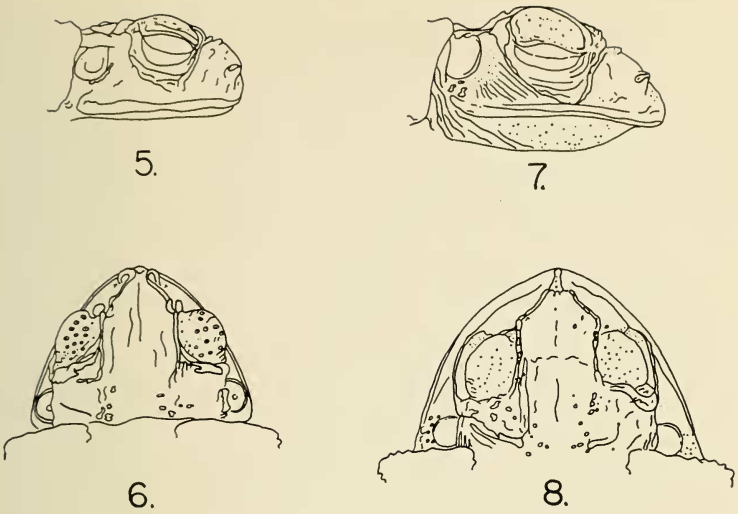

Fig. 5–8

in order. Considering the fact that it is probable that Tschudi's material came from the region of some seaport, and La Habana being disqualified for reasons specified above, I hereby propose to restrict the type locality of *Bufo peltacephalus peltacephalus* Tschudi to the vicinity of Santiago de Cuba, Oriente Province, Cuba.

The large toads of western Cuba are thus without a name, and for these western populations I hereby propose the name:

Bufo peltacephalus fustiger new subspecies

Type: American Museum of Natural History (AMNH) 59847, from San Vicente, Pinar del Río Province, Cuba, taken 21 December 1956, by John R. Feick. Original No. 1205.

Paratypes (all from Pinar del Río Province, Cuba): AMNH 63383, 3.5 km NE Guane, 26 August 1958, G. R. Zug; AMNH 63384, Cueva de Santo Tomás, 10 km N Cabezas, 1 September 1958, A. Schwartz; AMNH 61196-97, San Vicente, 29 August 1957, J. R. Feick; USNM 27330-32, El Guamá, 18–25 March 1900, William Palmer and J. H. Riley; USNM 27634, San Diego de los Baños, 17 April 1900, William Palmer and J. H. Riley.

Distribution: Known from the Península de Guanahacabibes (Vallecito de San Juan) throughout Pinar del Río, Habana and Matanzas provinces at least to the vicinity of the city of Matanzas.

Diagnosis: A subspecies of *Bufo peltacephalus* characterized by a dif-

fuse dorsal pattern of yellows, tans and browns, usually appearing as vermiculations or confluent ill-defined blotches, large size (males up to 148 mm, females up to 164 mm in snout–vent length) and a long and broad head.

Description of type: An adult male, with the following measurements (in millimeters): snout–vent length, 126.6; length of head from snout to posterior border of tympanum, 40.3; greatest width of head, 52.8; longitudinal diameter of eye, 15.2; naris to eye, 11.1; femur, 46.3; tibia, 44.2; fourth toe, 45.8; interorbital distance, 20.4; "length" of parotoid gland, 24.3.

The coloration of the type is a combination of dark chocolate-brown markings laterally which become slightly more reddish centrally, and irregular areas of tan, these areas not being sharply set off from the dark pattern. The entire dorsum gives the appearance of dark and light vermiculations, arranged asymmetrically (see Fig. 3). There is a rather distinct, brown, longitudinal band, beginning just posterior to the tympanum and extending along the side to the region of the groin, where it becomes fragmented into a series of distinct brown spots. The fore- and hindlimbs are banded; the antebrachium, thigh, crus and pes each appear to have two bands. None of these limb markings is especially definite or prominent. The dorsal surface of the head is uniformly brown. The ventral surface is dull gray on the throat and chest, with the chin and lip areas cream. The belly becomes increasingly pale posteriorly after the gray chest, but remains somewhat clouded with gray to the region of the groin. The anterior and posterior faces of the thighs are mottled with brown blotches on a lighter tan background, the blotches on the anterior face of the thigh being smaller than those on the posterior.

The head is like that of *Bufo p. peltacephalus* in that the cranial crests are low, and not projecting, and there is an anteorbital notch at the junction of the supraorbital and canthal cranial crests (see Figs. 5 and 6). The upper lip does not project into a flange-like shelf, and the cranial crests and surface of head itself are smooth and lack any keratinized tubercles or spines. Although the dorsum is tuberculate, the warts on the anterior third being the largest, there are no keratinized spines either dorsally or ventrally, and the tubercles are low and rounded.

The toes are rather short and webbed, 4-3-5-2-1 in order of decreasing length. The web between toes 3 and 4 is the largest, and allows three phalanges of digit 4 and two of digit 3 to remain free, although it extends as a marginal lateral flange to the tips of these digits. The basal phalanx of digit 4 lacks web but shows the dermal flange for about half its length. The fingers are moderate in length and slender, unwebbed, 3-4-1-2 in order of decreasing length. The tympanum is large and conspicuous, eccentrically oval in shape, and separated from the posterior corner of the eye by a distance one-half its longitudinal diameter. The interorbital space is smooth, with three tubercles posteriorly. Microscopically, the interorbital space is raised into fine rugae, rather than tubercles.

Variation: Six adult males have the following measurements: Snout–

vent length 129.5 (115.6–147.8); head length 42.2 (39.0–47.7); head width 55.2 (50.5–62.3); longitudinal diameter of eye 14.9 (14.1–15.4); naris to eye 11.7 (9.5–12.7); femur 45.0 (41.1–50.5); tibia 44.8 (43.2–46.0); fourth toe 45.2 (41.6–48.3); interorbital distance 21.0 (18.8–23.5); "length" of parotoid 24.1 (23.0–26.1). Nine adult females measure: Snout–vent length 139.8 (125.5–163.8); head length 45.5 (41.5–50.4); head width 59.8 (55.6–64.2); longitudinal diameter of eye 15.5 (13.7–17.5); naris to eye 12.2 (10.6–13.0); femur 48.9 (38.8–56.0); tibia 48.6 (41.7–52.3); fourth toe 46.7 (41.8–50.6); interorbital distance 22.3 (19.7–24.2); "length" of parotoid 25.9 (22.8–28.8). Females average larger in all measurements taken than males.

Comparison of the 14 adult specimens with the type shows some variation. Although the dorsal pattern is always diffusely vermiculate, it is often more narrowly so than the pattern of the type; thus, the dorsum may show a very diffuse pattern of tan to yellow, diffuse, worm-like markings on a darker tan to chocolate-brown background. In no specimen is the dorsal pattern clearly defined as it is in *B. p. peltacephalus* (see Figs. 1 and 2). Structurally, the series resembles the type in most ways; the dorsal and ventral tubercles may or may not be spinose. If the latter condition pertains, the spines are poorly developed and not striking. The anterior tubercles are always larger and more prominent than the posterior ones. The interorbital area is always smooth with fine rugae, with a few scattered bony tubercles posteriorly. Because of the broad head, this member often appears to be unusually large, even for such a big toad. All specimens show the prominent anteorbital notch.

Comparisons: B. p. fustiger differs from the nominate form in that *peltacephalus* has a dorsal pattern of distinct yellow vermiculations on a chocolate to reddish-brown background (see Figs. 1 and 2). The diffuse pattern of *fustiger* contrasts with the definite pattern of *peltacephalus.* The western subspecies appears to reach a larger size than *peltacephalus,* males of which race are known to reach a size of 128 and females 139 mm. The difference in head width is reflected in the ratio of head width to snout–vent length; this ratio ($\times$ 100) in male *fustiger* is 42.7 (40.6–44.4) and in male *peltacephalus* 40.5 (38.3–45.5), in female *fustiger* 42.9 (38.1–45.5) and in female *peltacephalus* 39.7 (37.2–40.8).

Remarks: I have seen no specimens intermediate between the two subspecies of *B. peltacephalus;* the easternmost specimen of *fustiger* is from Matanzas, Matanzas Province, and the westernmost *peltacephalus* is from Soledad, Las Villas Province; thus a distance of some 170 kilometers separates the known ranges of these two forms. Intergrades are to be expected in western Las Villas and eastern Matanzas provinces.

With the naming of an additional race of *B. peltacephalus* from Cuba, I am undecided about the status of the Isla de Pinos toads. I have examined 16 adult toads from four Isla de Pinos localities, including both north and south coasts. Chromatically, these anurans are closest to *B. p. peltacephalus,* but occasional specimens resemble the western *B. p. fustiger.* In size, they are intermediate between the two Cuban races; males reach

a maximum size of 142 and females 149 mm. In contrast to *fustiger,* these toads are more narrow headed and are thus closer to *peltacephalus.* In addition, they appear to be more warty dorsally than either of the Cuban races. Although I feel that the relationship of the Isla de Pinos fauna is with that of western Cuba, it appears that these toads are an exceptional case, and I prefer to call them *Bufo p. peltacephalus,* thus showing their affinities with the central and eastern Cuban subspecies. The differences mentioned above should be noted, however.

Bufo p. fustiger occupies the same niche in western Cuba that *B. p. peltacephalus* does elsewhere on the island. These toads occur, at times abundantly, in hardwood forest, cultivated fields, along stream banks, and in almost any mesic situation. They are not uncommon along the ocean in certain areas. Males vocalize from flooded ditches and slowly running streams, usually after heavy rains in summer, and are very shy, ceasing to call when disturbed.

The measurement "length" of parotoid gland requires comment. Since the parotoids are lateral in position and are curved both dorsally and ventrally, it is difficult to secure an accurate measurement of length. Actually, this measurement is almost one of thickness of the amphibian in the neck region, and thus can be used only with extreme reservation as far as differentiating various forms of the *B. peltacephalus* group is concerned.

Specimens examined (other than type and paratypes): *B. p. fustiger,* Pinar del Río Province—Vallecito de San Juan, 11 km W Cayuco, 1 (AMNH 63382); La Mulata, 2 (USNM 51864–65); Guanajay, 1 (USNM 27333); 3 km NE Guanajay, 1 (AMNH 59843); Matanzas Province—6 mi. E Canasí, 1 (AMNH 63379); Matanzas, 1 (USNM 57892). Also numerous juveniles and subadults from Pinar del Río and Habana provinces.

Bufo p. peltacephalus, Las Villas Province—Soledad, nr. Cienfuegos, 5 (AMNH 6020, 61185–88); Camagüey Province—3 mi. S Playa Santa Lucía, 2 (AMNH 63473); 2 km SE Banao, 1 (AMNH 61194); Oriente Province—Banes 2 (USNM 138901, 138903); El Cobre, 1 (AMNH 494); Santiago de Cuba, 3 (AMNH 495, USNM 57893–94); 0.7 mi SW El Cristo, 1 (AMNH 63474); 5 mi S Dos Caminos, 5 (AMNH 63475); Guantánamo, 1 (USNM 81807); 12 mi E Guantánamo, 1 (AMNH 63481); Taco Bay 1 (AMNH 63482); Pilón, 1 (AMNH 32209); Isla de Pinos—just W Nueva Gerona, east base Sierra de las Casas, 7 (AMNH 63380); Bibijagua, 1 (AMNH 61199); Paso de Piedras, *ca.* 20 km SSW Santa Fé, 5 (AMNH 61200, 61203–06); Jacksonville, 3 (AMNH 63381). Also additional juveniles and subadults from Las Villas, Camagüey, and Oriente provinces, as well as the Isla de Pinos.

In the summer of 1959, Messrs. Klinikowski and Smith, and myself collected a small series of distinctly patterned toads on El Yunque de Baracoa. In addition to their characteristic design, these toads were structurally distinct from *B. peltacephalus,* although obviously closely related to it. The two forms appear to be generally sympatric, although ecologically separated. That this ecological isolation is not complete is shown by two

specimens which I regard as hybrids between the two. The new species and *B. peltacephalus* I regard as another example of the rapidly increasing number of recognized sibling species in the West Indies, and for this form I propose the name, in honor of James R. Talada for his enthusiastic assistance in many ways in the field, as

Bufo taladai, new species

Type: AMNH 63485, from 2 mi S Taco Bay (Bahía de Taco), Oriente Province, Cuba, taken 23 December 1959, by Albert Schwartz. Original number 8598.

Paratypes (all from Oriente Province, Cuba): AMNH 63484, Taco Bay, 22 December 1959, P. F. Pepe; AMNH 63486–87, same date as type; AMNH 63490–93, 3 mi S Taco Bay, 25 December 1959, P. F. Pepe and Albert Schwartz; AMNH 63476–79, west slope, El Yunque de Baracoa, 7 August 1959, R. F. Klinikowski, A. Schwartz, B. L. Smith.

Distribution: Known from the north coast of Oriente (vicinity of Baracoa) west to northern Camagüey (vicinity of Banao).

Diagnosis: A moderately large species of *Bufo* (largest male 138, largest female 147), related to *Bufo peltacephalus* but differing from that species in having a dorsal pattern of dark brown with light yellow ocellate spots; lacking an anteorbital notch at the junction of the supraorbital and canthal cranial crests, all cranial crests beaded with minute keratinized granules; a distinctly flanged upper jaw; and more spinose than *B. peltacephalus*, especially on the anterior dorsal surface, parotoid glands, dorsal surface of the arms, and throat and chest.

Description of the type: An adult female, with the following measurements: Snout–vent length 141.8; length of head from snout to posterior border of tympanum 49.0; greatest width of head 59.3; longitudinal diameter of eye 17.2; naris to eye 12.6; femur 48.4; tibia 47.2; fourth toe 49.8; interorbital distance 23.1; "length" of parotoid gland 23.1.

The coloration of the type is uniformly chocolate-brown dorsally, mottled with a profusion of light yellow, generally rounded, spots, which are somewhat dusky (tan) along the midline of the back (see Fig. 4). The femoral markings are like those of the dorsum, and the concealed surfaces of the thighs are brown with a pattern of yellow spots and vermiculations. There are apparently three brown crural crossbars, and the dorsal surface of the pes is mottled brown and yellow. The toes, as well as the fingers, are tan to cream colored. The forelimbs are likewise mottled brown and yellow, with three poorly delineated antebrachial crossbars. The entire head is brown without chromatic features. The ventral surface is dirty cream on the belly to a very pale tan on the chest and throat. The palmar and plantar tubercles are prominent but not keratinized.

Structurally, the type is characterized by the high and prominent cranial crests (see Figs. 7 and 8) and the absence of an anteorbital notch between the supraorbital and canthal crests. Immediately anterior to the eye, the junction of these two crests is somewhat raised, and then the canthal crest descends rather abruptly to the naris. The parietal area of

the head is irregularly rugose, and the region between the tympanum and the upper labial margin, as well as the loreal area, shows irregular small keratinized tubercles. The upper jaw projects laterally and anteriorly into a sort of shelf or flange, along the surfaces and edge of which are studded a series of tiny but conspicuous horny tubercles, which occur as well along the margin of the mouth itself. The postorbital, supraorbital, preorbital, canthal, and rostral crests likewise are beaded with these small horny tubercles, and the profile of the head is distinctly sharp-nosed rather than with the blunt appearance of *peltacephalus* (see Fig. 5). The upper eyelids are also spinose.

On the body, the dorsal tubercles are distinctly horny, the keratinizations larger and more conspicuous anteriorly than posteriorly, and giving the appearance of a tuberculate and spinose cape over the back between the parotoids. All warts on the fore- and hindlimbs have horny spines. The throat and chest are spinose, the black spines prominent against the pale tan to gray ground color. Posterior to the chest, the spines become smaller and less conspicuous, and they disappear completely about half way across the belly.

The toes are relatively long and webbed, 4-3-5-2-1 in order of decreasing length. The web between toes 3 and 4 is the largest, and allows three phalanges of digit 4 and two of digit 3 to remain free, although it extends as a marginal lateral flange almost to the tips of these digits. The fingers are long and slender, 3-4-2-1 in order of decreasing length, unwebbed. The tympanum is large and conspicuous, irregularly oval in shape, and separated from the posterior corner of the eye by a distance one and one-half times its longitudinal diameter. The interorbital area is smooth throughout most of its length, but there are a few irregular rugosities posteriorly; microscopic examination of the interorbital fossa shows that it is paved with tiny tubercles, giving it a shagreened appearance.

Variation: Seven adult males have the following measurements: snout–vent length 117.8 (99.8–138.4); head length 38.6 (31.0–45.2); head width 45.1 (30.0–53.6); diameter of eye 13.9 (10.8–15.7); naris to eye 10.5 (7.3–12.6); femur 41.2 (36.0–51.5); interorbital distance 18.5 (14.4–22.0); "length" parotoid 20.9 (18.2–24.7). Seven adult females, including the type, have the following measurements: snout–vent length 138.4 (118.5–146.9); head length 45.0 (37.8–49.0); head width 55.5 (47.8–59.3); diameter of eye 15.5 (13.3–17.2); naris to eye 12.0 (10.7–12.8); femur 47.4 (36.9–54.7); tibia 46.4 (38.4–48.3); fourth toe 47.0 (40.5–50.0); interorbital distance 22.5 (18.5–24.4); "length" parotoid 24.7 (20.4–29.1). Inspection of these data shows that females average larger in all measurements taken. Mature males may have a heavily cornified area on the entire dorsal surface of the thumb, but some of the larger males lack this keratinized pad.

Comparison with the type of the 13 specimens regarded as mature shows that they agree very well with it in coloration and pattern. The dorsal color is always some shade of brown, usually dark, with the back profusely covered with pale yellow to cream spots. The precise configuration

and arrangement of these spots varies; some individuals (AMNH 63493) are almost irregularly vermiculate, whereas others (AMNH 63476) have relatively few small discrete spots, and much more dark ground color than pale on the dorsum. In some the parotoids are distinctly yellowish in preservative, but this is not usual. The crural bands are at times almost completely obliterated by random and diffuse pale mottling and spotting.

All the adult specimens are like the type insofar as wartiness, absence of the anteorbital notch, pointed snout and flanged upper jaw are concerned. One individual (AMNH 63480) is unique in that the supraorbital crest almost overhangs the eye anteriorly. The ventral spines may be more or less prominent than on the type; if more, they extend over the entire belly, and if less, they involve the throat and chest only.

There are eight juvenile and subadult specimens ranging in snout–vent length from 23.7 to 97.6 mm. The largest of these resembles the adults in pattern; the next largest (96.0 in snout–vent) is considerably lighter dorsally, and the dorsum is more or less diffusely vermiculate. The remaining six toads, of which the largest is 59.6 mm, show the juvenile pattern of a dark brown interocular triangle, its apex pointed posteriorly, and two pairs of dark brown dorsal blotches, the posterior pair somewhat less clearly defined than the anterior. The ground color of these small toads was dull tan in life, and none showed the vivid emerald green or rich reddish-tan of young *B. peltacephalus.*

All juveniles lack the anteorbital notch; the larger three toads in addition have the beaded cranial crests and heavily spinose back and face of the adults. It is apparent that the characteristics of *taladai* are not the manifestations of age or senility.

Comparisons: B. taladai hardly needs comparison with the three species of smaller toads (*B. longinasus, B. gundlachi* and *B. cataulaciceps*) of Cuba, nor with the somewhat larger *B. empusus.* The new species exceeds the former three greatly in size, and is distinctly larger than *empusus,* which species reaches a maximum body length of 74 mm (Ruibal, 1959: 14).

From *B. peltacephalus, taladai* differs in lacking the anteorbital notch, and in having a pattern of light spots on an otherwise dark dorsum. The new species is far more spinose than *peltacephalus,* and the head appears to be more pointed (*i.e.,* longer and narrower). Attempts at proving such a difference in head shape statistically show no significant difference, but at least male *taladai* have the average head width/snout–vent length ratio lower (39.1) than do male *peltacephalus* (40.1 Isla de Pinos, 42.7 western Cuba, 40.5 eastern Cuba). Female *taladai* have this ratio similar to *B. p. fustiger.* In size, *taladai* reaches a smaller size than Isla de Pinos and western Cuba *peltacephalus,* but is larger than the eastern race. I am unable to differentiate the two species involved on the basis of any measurements or proportions.

Comparison of juvenile *peltacephalus* and *taladai* shows that even the smallest *peltacephalus* have a clearly defined anteorbital notch, whereas the smallest *taladai* lack it. The cranial crests of the small *peltacephalus*

are irregularly edged, whereas those of *taladai* are smoother. The patterns of both are comparable, although I have had the impression that the interocular triangle is narrower and more restricted in *peltacephalus* and larger and wider in *taladai.* Juvenile *peltacephalus* only 48.5 mm in snout–vent length are already losing the juvenile pattern and have the first indication of the adult pattern, whereas a juvenile *taladai* 59.6 mm in snout–vent length still retains the juvenile pattern. There may thus be a difference between the two forms concerning size at which the juveniles begin to change to the adult pattern.

Remarks: Two specimens deserve special comment; these are AMNH 63488 from the type locality, and USNM 138902, from Banes, Oriente. This latter specimen has been reported upon by Lynn (1957: 57). It is one of three specimens from Banes collected by Major Chapman Grant; the remaining two toads are typical of *p. peltacephalus.* Lynn commented that the one toad was not typical of *B. peltacephalus* in that it lacked the anteorbital notch; the dorsal pattern likewise appears to be rather diffuse and is neither like the ocellate *taladai* pattern nor the distinctly vermiculate *peltacephalus* pattern. It resembles the latter species in lacking beaded cranial crests, and being smoother dorsally and ventrally, without spinose tubercles. The toad from Taco Bay likewise lacks anteorbital notches, is not spinose dorsally, but has a spiny throat and chest, and was almost uniformly olive green in life with vague mottling and blotching in gray and brown dorsally. Both specimens have a rather intermediately flanged upper jaw.

I prefer to call these two bufonids hybrids between *taladai* and *peltacephalus.* Structurally, they are almost ideally intermediate between the two species. Although *taladai* is presently not known from the Banes area, it is to be expected there since it occurs farther to the west in Camagüey. Both *peltacephalus* and *taladai* are known from Taco Bay, and the possibility of hybridization is not untenable. It might be argued that these two specimens represent intergrades—rather than hybrids—between the two toads, and that *taladai* should be regarded as a race of *peltacephalus.* The random nature of the distribution of these two peculiar individuals, and the fact that both forms maintain their distinctness despite geographical, if not ecological, sympatry elsewhere convinces me that the relationship is a specific one.

All specimens of *B. taladai* were taken in cut-over rain forest. The El Yunque series was obtained on a road on the side of this mountain as the toads hopped about on the road and in adjacent banana and cacao groves; the series from Taco Bay was taken in similar situations. The single Taco Bay *peltacephalus,* on the other hand, was taken in coastal scrub growth near the shore of the ocean, and was not associated with rain forest.

Specimens examined other than paratypes: Camagüey, 2 km SE Banao, 2 (AMNH 61193, 61195); Oriente, Moa, 1 (INHS 9269); Mayarí, 1 (MCZ 3725); Taco Bay, 1 (AMNH 63482); 3 mi S Taco Bay, 3 (AMNH 63489, 63494–95); Baracoa, 1 (MCZ 22090).

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Tschudi, J. J. 1838. Classification der Batrachier. Neuchatel, 1–102, 3 pls.

Explanation of Figures

Fig. 1.—*Bufo p. peltacephalus,* AMNH 63475, adult male, snout–vent length 123.9 mm, from 5 mi S Dos Caminos, Oriente Province, Cuba.

Fig. 2.—*Bufo p. peltacephalus,* AMNH 63481, adult female, snout–vent length 133.6 mm, from 12 mi E Guantánamo, Oriente Province, Cuba.

Fig. 3.—*Bufo p. fustiger,* new subspecies, AMNH 59847, type, adult male, snout–vent length 126.6 mm, from San Vicente, Pinar de Río Province, Cuba.

Fig. 4.—*Bufo taladai,* new species, AMNH 63485, type, adult female, snout–vent length 141.8 mm, from 2 mi S Taco Bay, Oriente Province, Cuba.

Fig. 5.—*Bufo p. peltacephalus,* lateral view of head, AMNH 63473, from 3 mi S Playa Santa Lucía, Camagüey Province, Cuba; note absence of flange-like upper lip.

Fig. 6.—*Bufo p. peltacephalus,* dorsal view of head, same individual as Fig. 5; note prominent anteorbital notch.

Fig. 7.—*Bufo taladai,* lateral view of head, same individual as Fig. 4; note flange-like upper lip.

Fig. 8.—*Bufo taladai,* dorsal view of head, same individual as Fig. 4; note absence of anteorbital notch.